

Service Manual

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AJ28

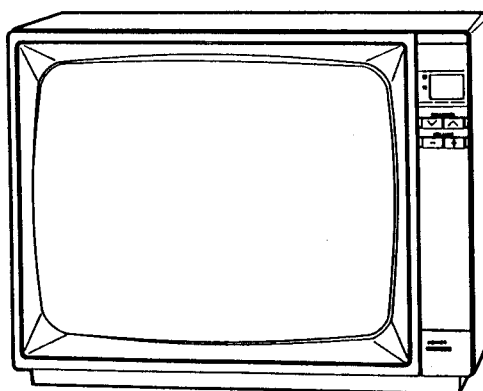
COLOR TELEVISION RECEIVER

PAL/SECAM



ORION

MODEL COLOR3630RC

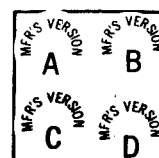


Bei technischen Änderungen können Ergänzungsblätter angefordert werden.

SL-Druck GmbH

Specifications are subject to change without notice.

MFR'S VERSION



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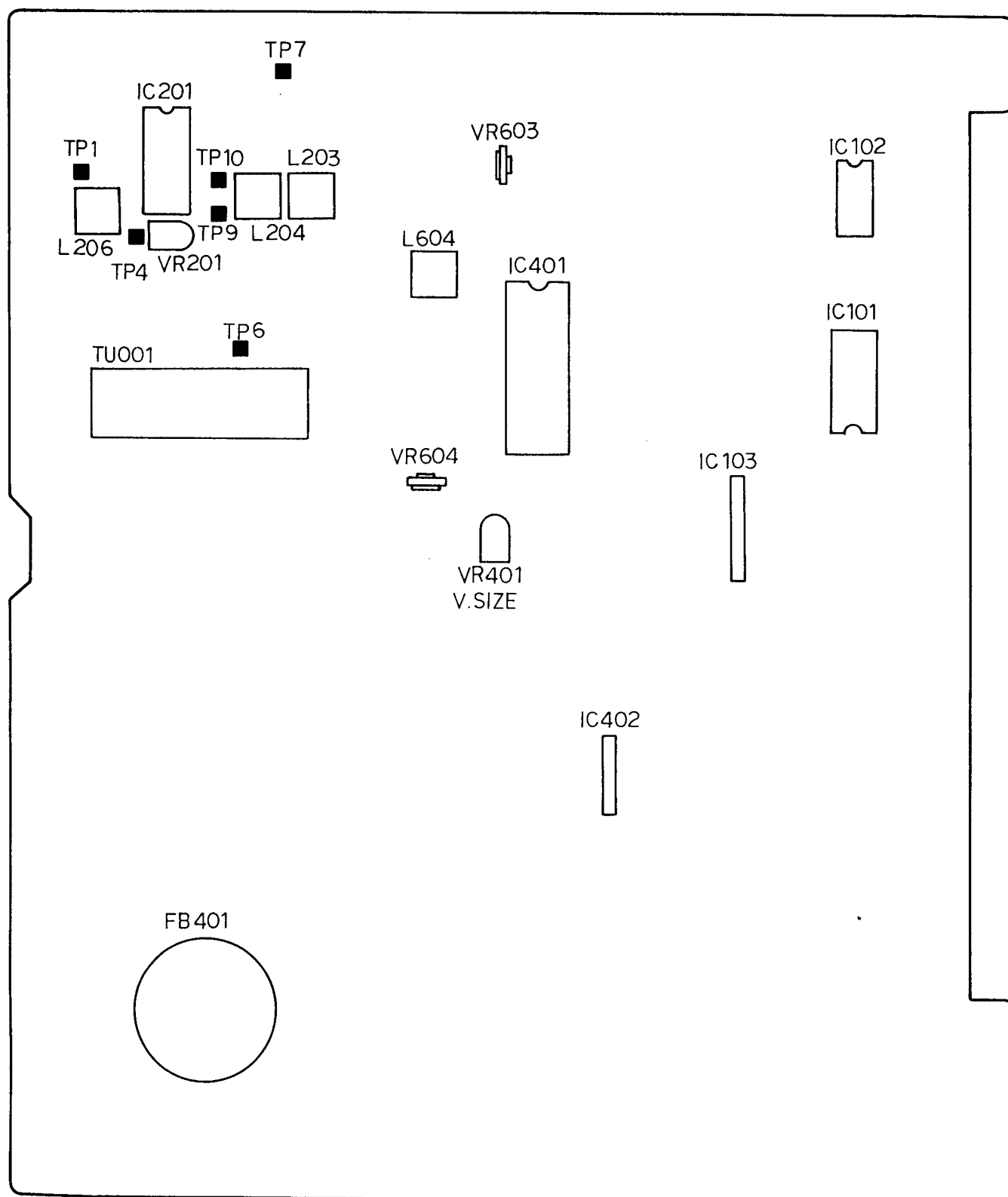
ELECTRICAL SPECIFICATIONS

PICTURE SIZE	14 inch
SYSTEM	PAL/SECAM
FREQUENCY RANGE UHF	21 - 69 ch, 470 - 862 MHz
VHF(L)	2 - 4, X - S2 ch, 47 - 118 MHz
VHF(H)	S3 - S10, 5 - 12, S11 - S20 ch
	118 - 300 MHz
MAXIMUM SENSITIVITY UHF	30 dB
VHF	25 db
INTERMEDIATE FREQUENCY:	
Picture IF Carrier Frequency	38.9 MHz
Color Sub Carrier Frequency	34.47 MHz
Sound IF Carrier Frequency	33.4 MHz
SOUND INTERMEDIATE FREQUENCY	5.5 MHz
MAXIMUM OUTPUT POWER	1.3 W
10% THD OUTPUT POWER	1.0 W
SPEAKER	8 ohm
POWER SOURCE	AC 220V

IMPORTANT

FOR SERVICE WORK ALWAYS USE MAINS ISOLATING TRANSFORMER, CHASSIS IS LIVE.
(IRRESPECTIVE OF POLARITY OF MAINS PLUG.)

MAJOR COMPONENTS LOCATION GUIDE



ALIGNMENT INSTRUCTIONS

SHUT DOWN CIRCUIT

When the high voltage rises, a simultaneous voltage increase will develop at terminal 9 of the Horizontal Output Transformer (FB401), and be applied to pin 26 of IC401. If excessive high voltage is produced, the increased voltage developed exceeds the rating of zener diode D404 causing the Horizontal Oscillator to stop functioning and the high voltage system is then shut down.

VERTICAL SIZE ADJUSTMENT

Adjust the control (VR401) so that the picture fills the picture opening from top to bottom and is proportionate to the width.

RF AGC ADJUSTMENT

The RF AGC control is adjusted at the factory and rarely requires re-adjustment unless the received picture exhibits too much snow or the receiver lacks sensitivity. Home adjustment can be made by tuning in a weak snowy station and adjusting RF AGC for the least amount of snow. For a more accurate adjustment use the following procedure.

1. Receive the signal of test pattern (65dB).
2. Adjust AGC pin of TV tuner (IP11) to 6.0V with VR201 control.

SUB BRIGHT ADJUSTMENT

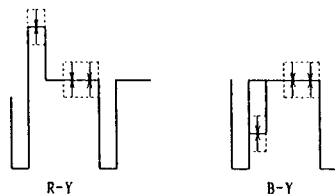
1. Receive the signal of Monochrom pattern.
2. Set the Contrast (VR102) control to maximum position.
3. Set the Brightness (VR103) control to minimum position.
4. Adjust the Sub Bright (VR605) control to obtain a dim white pattern on 75% of gray scale.

FOCUS ADJUSTMENT

Adjust focus control, on the flyback transformer, for fine picture.

HUE DELAY ADJUSTMENT

1. Receive the signal of DEM pattern.
2. Connect dual oscilloscope to Base of Q801 and Q803.
3. Set the color (VR101) control to maximum position.
4. Adjust waveform to straight line with VR603, VR604 and L604.



COLOR PURITY ADJUSTMENT

The receiver must have been operating 10 minutes prior to this procedure and the face plate of the CRT must be at room temperature. The following procedure is recommended while using a Dot/Bar Generator.

1. Check for correct location of all neck components. (Refer to Figure 1)
2. Rough-in the static convergence at the center of the CRT, as explained in the static convergence.
3. Rotate the contrast control to maximum CCW position and rotate brightness control as far CW as possible without causing the picture to "bloom".

4. Rotate the Red Bias (VR801) and Blue Bias (VR804) controls to maximum CCW position. Rotate the Green Bias (VR803) control sufficiently in a CW direction to produce a green raster.
5. Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
6. Begin the following adjustment with the tabs on the round purity magnet rings set together, slowly separate the two tabs while at the same time rotating them to adjust for a uniform green stripe at the center of the CRT screen.
7. Carefully slide the deflection yoke forward to achieve green (uniform green screen).
NOTE: Center purity is obtained by adjusting the tabs on the round purity magnet rings, outer edge purity is obtained by sliding the deflection yoke forward.
8. Check for red and blue field purity by reducing the output of the Green Bias (VR803) control and alternately increasing output of Red (VR801) and Blue Bias (VR804) controls and touch up adjustments, if required.
9. Tighten deflection yoke clamp screw.

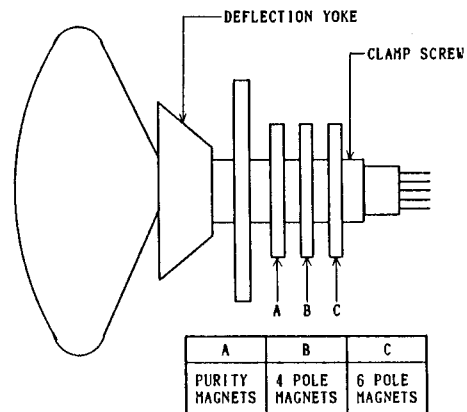


Figure 1 Picture Tube Neck Component Location

BLACK AND WHITE TRACKING

The purpose of this procedure is to adjust the biases applied to the picture tube to obtain good black and white picture production at all brightness levels while, at the same time achieving maximum useable brightness. Proper RF AGC control adjustment should have been verified prior to performing this procedure.

1. With antenna connected to the receiver, tune in picture on a strong received channel. Misadjust the fine tuning control so that receiver will not produce a color picture while the following adjustment are being performed.
2. Rotate the Red (VR802) and Blue Drive (VR805) control fully CW and then back CCW to the center of their rotation ranges.
3. Rotate the Green (VR803), Red (VR801) and Blue Bias (VR804) controls to the fully CCW end of their rotation ranges.
4. Set normal-service switch to service position. Adjust the voltage of test point (collector of green output transistor on CRT PCB) to DC120V with brightness control. Voltage measurement should be measured with an oscilloscope.
5. Rotate the screen control to the fully CCW end of its rotation range. Then, rotate it CW until a dim line of one pronounced color (green, red or blue) is obtained.
6. The other two color bias controls must be rotated CW until a dim white line is obtained.
7. Set normal-service switch to normal position.
8. If required, touch-up adjustment of the Red (VR802) and Blue Drive (VR805) controls to produce a uniform monochrome picture.
9. Rotate the brightness and contrast controls fully CCW.
10. Rotate the brightness control CW until a dim raster is obtained.
11. If the screen does not display good while uniformity, steps 2 through 10 of this procedure must be repeated.

ALIGNMENT INSTRUCTIONS

STATIC CONVERGENCE ADJUSTMENT

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Connect the output of a Crosshatch Generator to the receiver and, concentrating on the center of the CRT screen, proceed as follows:
 - a. Locate a pair of 4 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue lines.
 - b. After completing red and blue center convergence, locate the pair of 6 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue (magenta) and green lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue (magenta) and green lines.

DYNAMIC CONVERGENCE ADJUSTMENT

Dynamic convergence (convergence of the three color fields at the edges of the CRT screen) is accomplished by proper insertion and positioning of three rubber wedges between the edge of the deflection yoke and the tunnel of the CRT. This is accomplished in the following manner.

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Apply crosshatch pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
3. Tilt the deflection yoke up or down, and insert tilt adjustment wedges (1) and (2) between the deflection yoke and the CRT until the mis-convergence illustrated in Figure 2 (A) has been corrected.
4. Tilt the deflection yoke right and left, and insert tilt adjustment wedge (3) between the deflection yoke and the CRT until the mis-convergence illustrated in Figure 2 (B) has been corrected.
5. Alternately change spacing between, and depth of insertion of the three wedges proper dynamic convergence is obtained.
6. Use a strong adhesive tape to firmly secure each of the three wedges to the funnel of the CRT.
7. Check purity and readjust, if necessary.

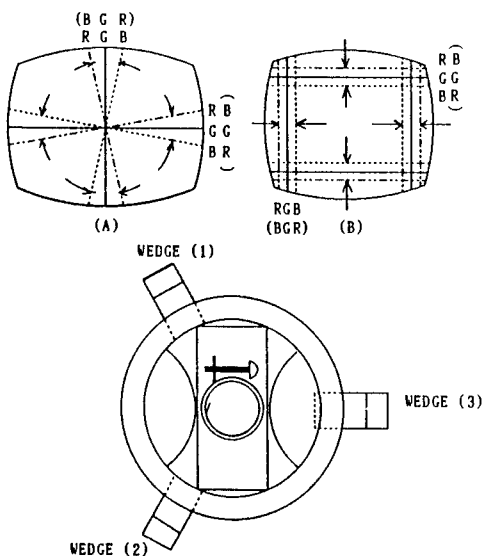


Figure 2 Dynamic Convergence Adjustment

VIDEO IF ALIGNMENT

(Refer to Figure 3)

TEST EQUIPMENT CONNECTION

OSCILLOSCOPE Set AC-DC switch to AC position.

SWEEP-MARKER GENERATOR Connect H SCOPE and V SCOPE output cable from SWEEP-MARKER GENERATOR to H and V input connectors on the OSCILLOSCOPE, connect hot lead of SWEEP-MARKER OUTPUT cable to test point TP1 on PCB001; connect ground lead to chassis ground. Connect pick up SWEEP-MARKER INPUT cable to TP7; ground lead to chassis ground.

1. Connect 10K ohm variable resistor between TP4, +B(12V) to ground. Install AGC VR to prevent saturation in waveform, then adjust AGC VR for proper size of waveform. On the other hand, in case IF AGC voltage is supplied externally, adjust for proper size of waveform on condition that IF AGC voltage is within 10V and is gradually decreased.
2. Adjust L204 to obtain maximum amplitude of response curve at 38.9 MHz. (Refer to Response Curve "A")
3. Connect a 100 ohm resistor between TP9 and TP10. Re-connect hot lead of SWEEP-MARKER GENERATOR OUTPUT cable from TP1 to TV tuner TP.
4. Adjust L206 to obtain maximum amplitude of response curve. (Refer to Response Curve "B")
5. Disconnect the 10K ohm variable resistor and 100 ohm resistor from the circuit. Disconnect COO6. (solder bridge)
6. Connect SWEEP-MARKER GENERATOR INPUT cable from TP7 to TP6.
7. Adjust L203 to place 38.9 MHz marker at reference line on response curve. (Refer to Response Curve "C")
8. Re-connect COO6. (solder bridge)

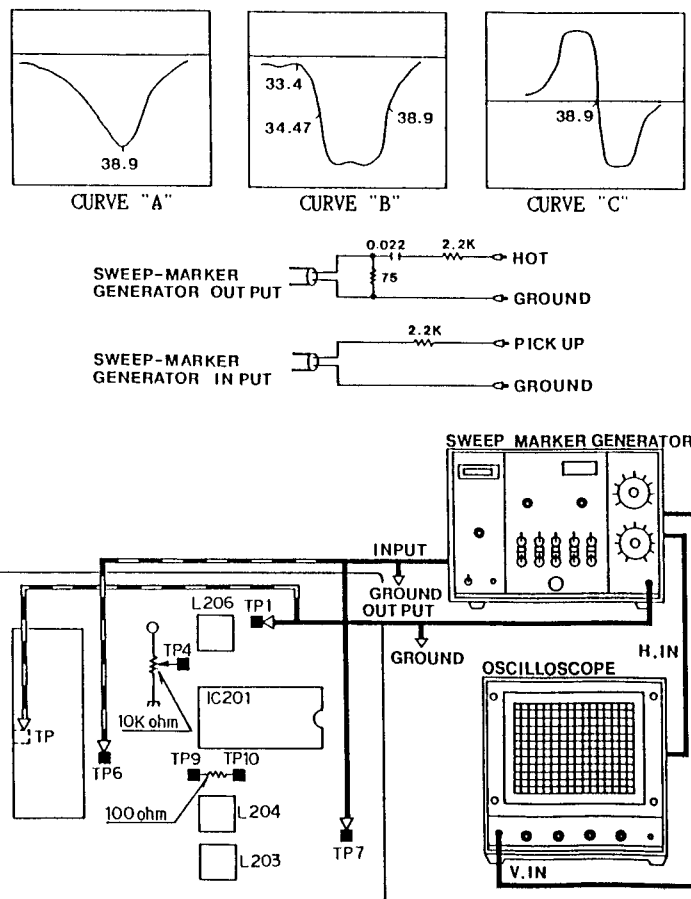


FIGURE 3

ALIGNMENT INSTRUCTIONS

SECAM CHROMA BANDPASS ALIGNMENT

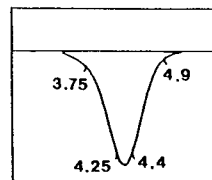
(Refer to Figure 4)

TEST EQUIPMENT CONNECTION

GENERAL PAL-SECAM switch to SECAM position.

SWEEP-MARKER GENERATOR . . . Connect H. SCOPE and V. SCOPE output cable from SWEEP-MARKER GENERATOR to H. and V. input connectors on the OSCILLOSCOPE, connect hot lead of SWEEP-MARKER OUTPUT cable to TP on TV tuner; connect ground lead to chassis ground. Connect pick up lead SWEEP-MARKER INPUT cable to TP15; connect ground lead to TP17.

1. Adjust L901 to obtain best overall response curve.
(Refer to Response Curve "D")



CURVE "D"

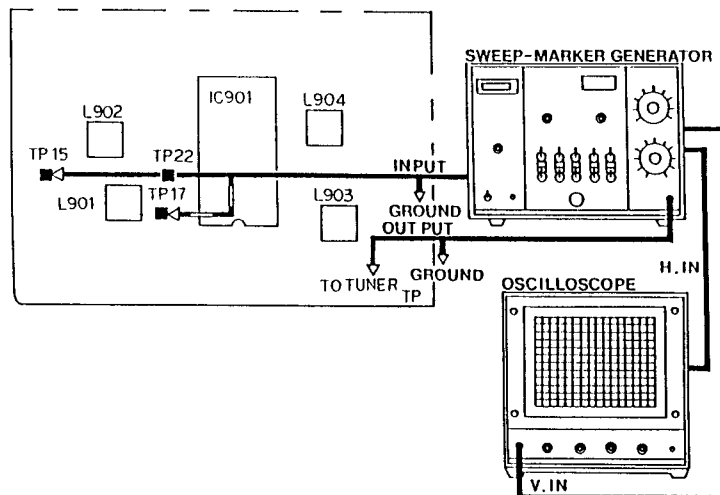
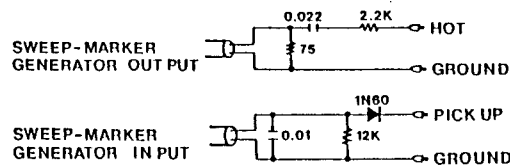


FIGURE 4

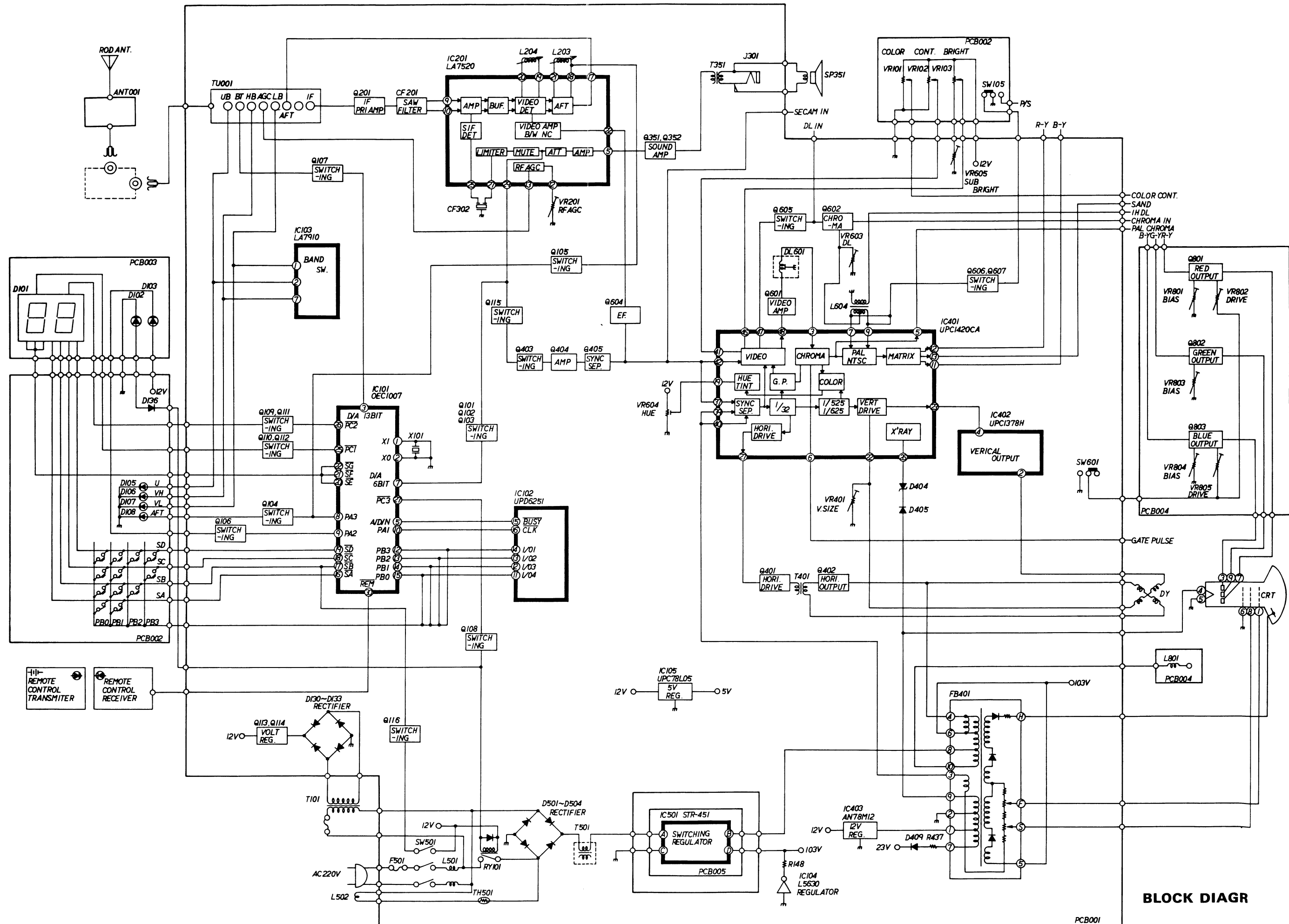
SECAM IDENT ADJUSTMENT

1. Receive the signal of secam color pattern.
2. Connect the oscilloscope to TP22 and ground.
3. Adjust the voltage to maximum with L902.

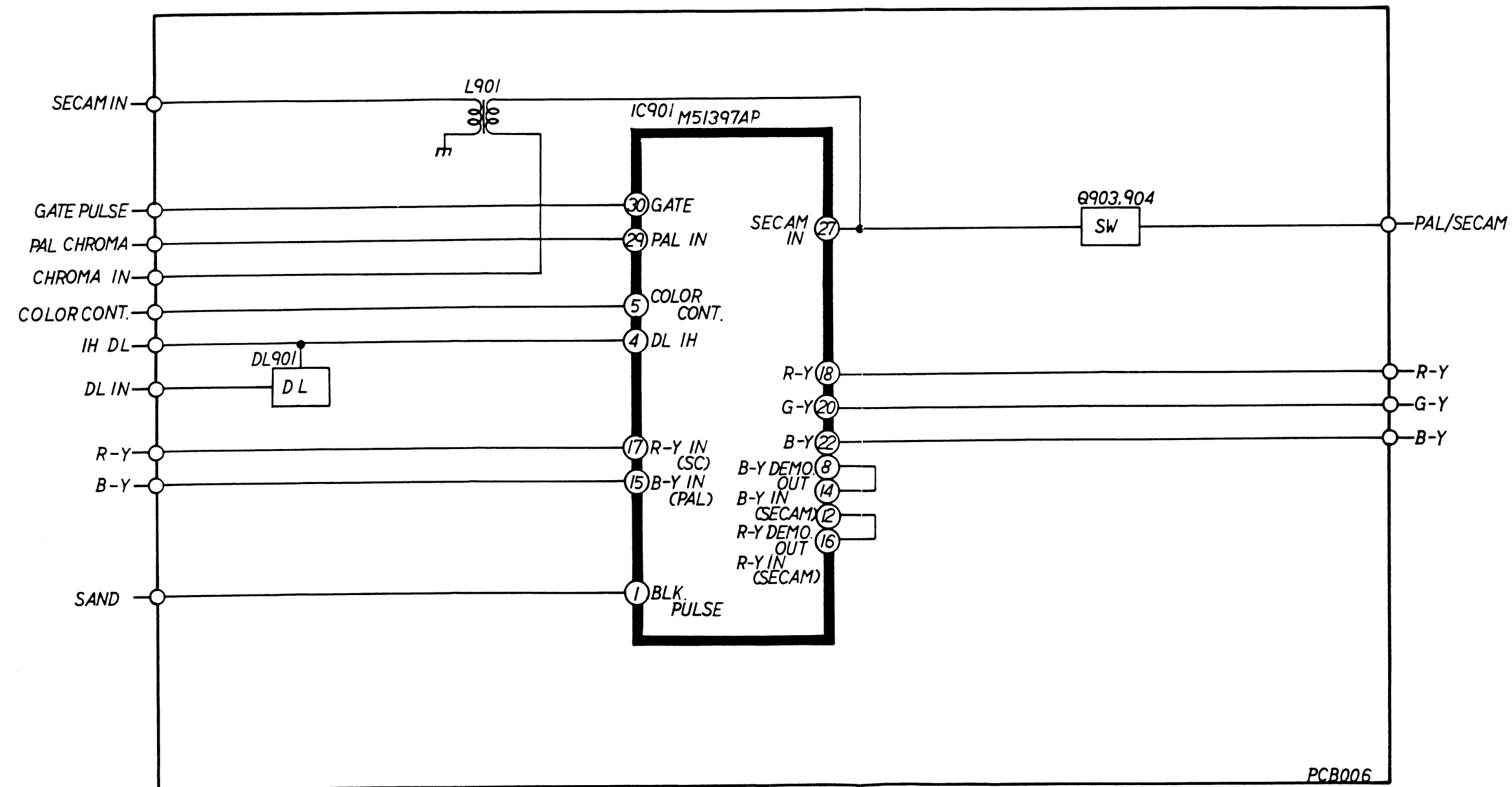
SECAM PHASE ADJUSTMENT

1. Receive the signal of secam color pattern.
2. Adjust L903 and L904 not to change the color of ground on the pattern while tuning the Color (VR101) control from minimum to maximum position.

BLOCK DIAGRAM

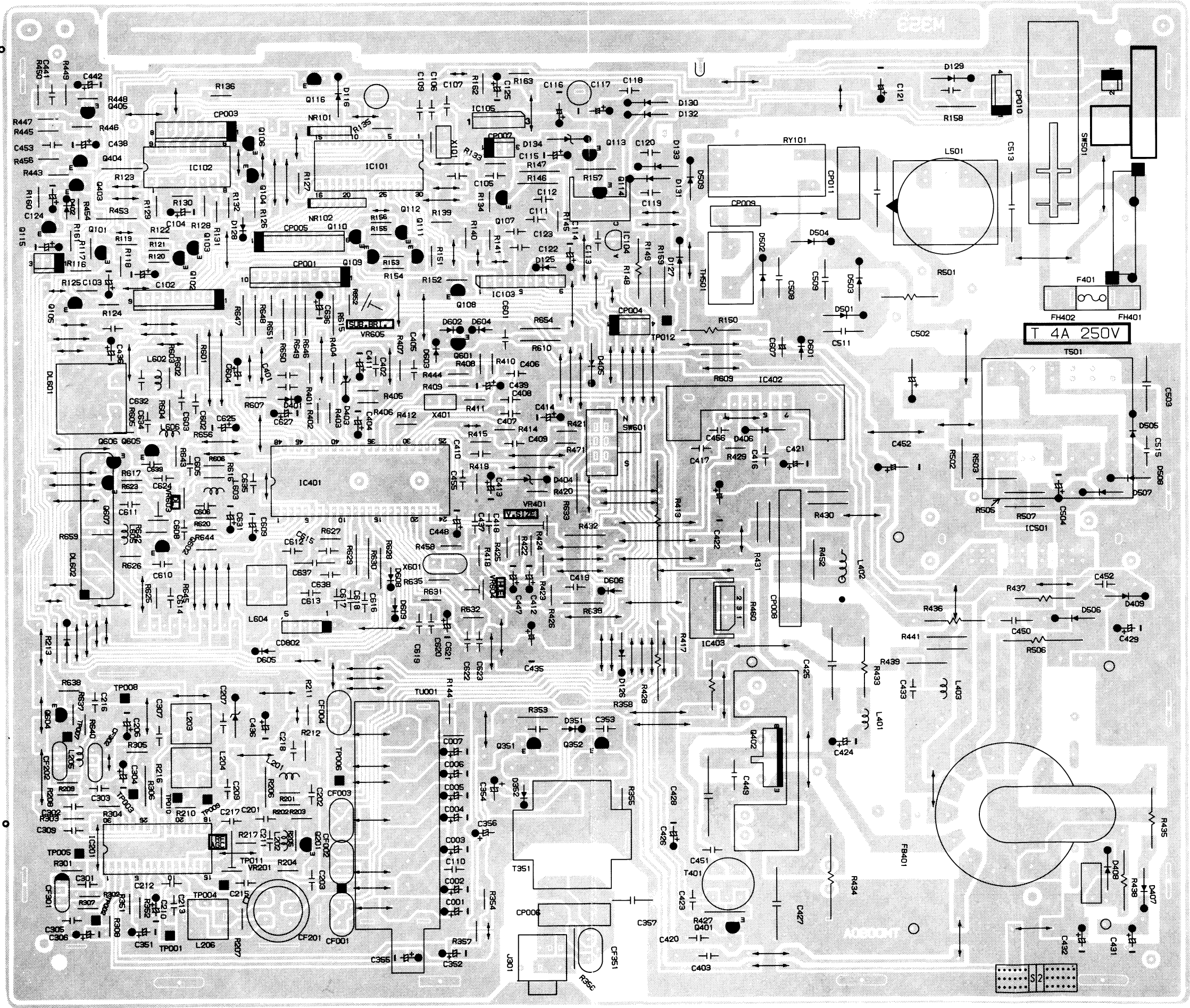


BLOCK DIAGRAM



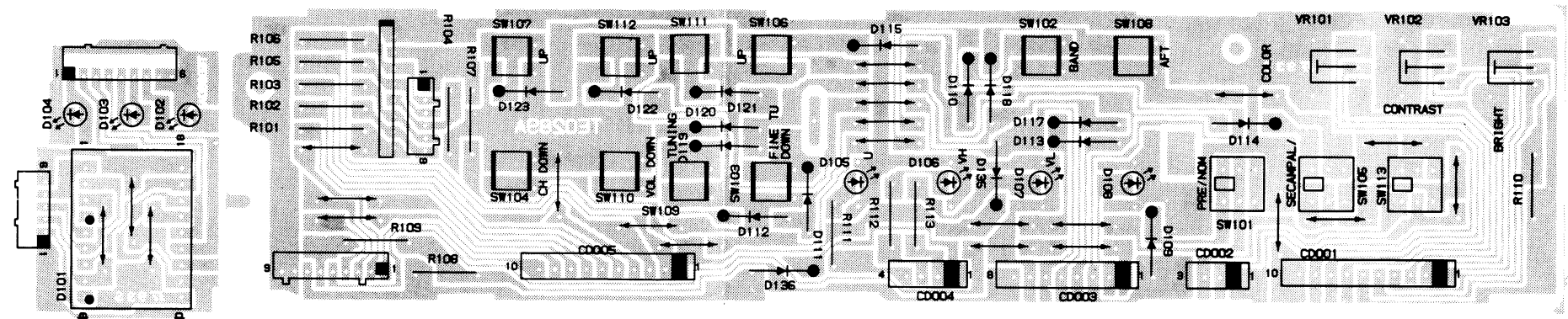
BLOCK DIAGRAM

MAIN P. C. BOARD

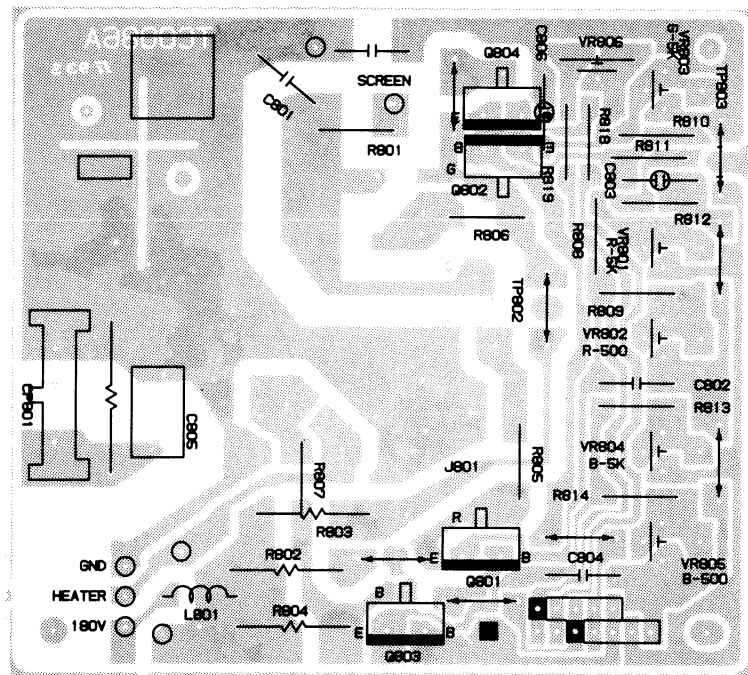


MAIN P. C. BOARD

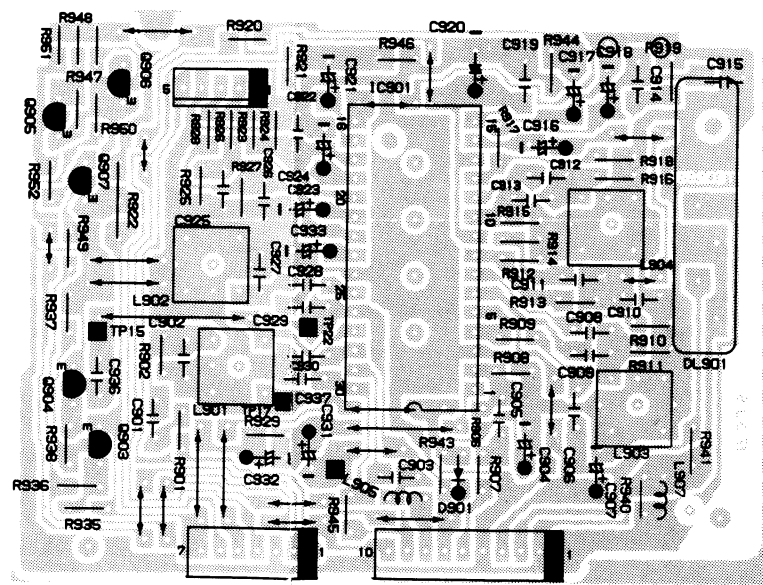
CONTROL / LED P. C. BOARD



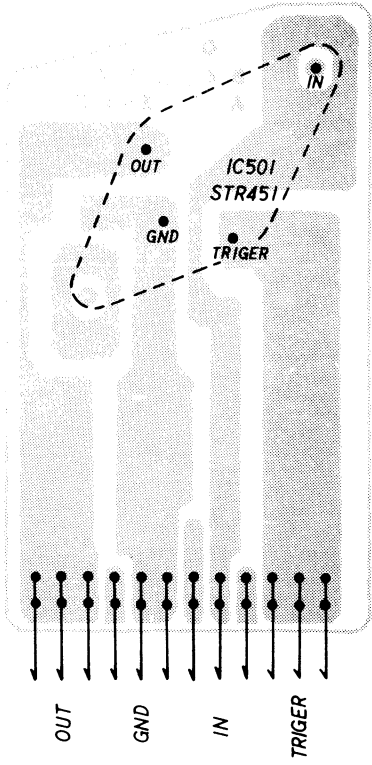
CRT P. C. BOARD



SECAM P. C. BOARD



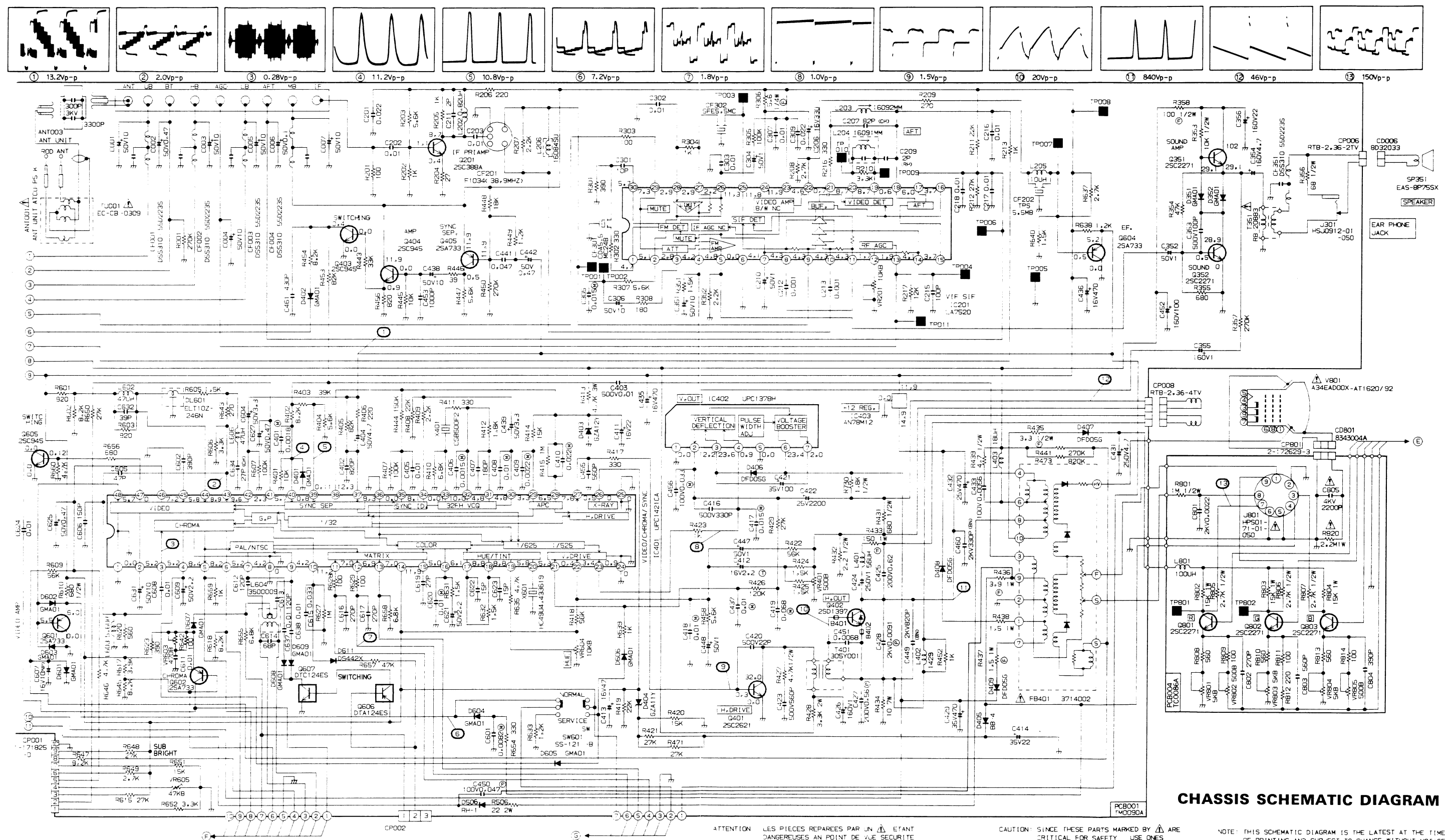
POWER P. C. BOARD



SYMBOL LIST

RESISTOR	—
SEMI-FIXED RESISTOR	—
CAPACITOR	—
JUMPER	—

CHASSIS SCHEMATIC DIAGRAM

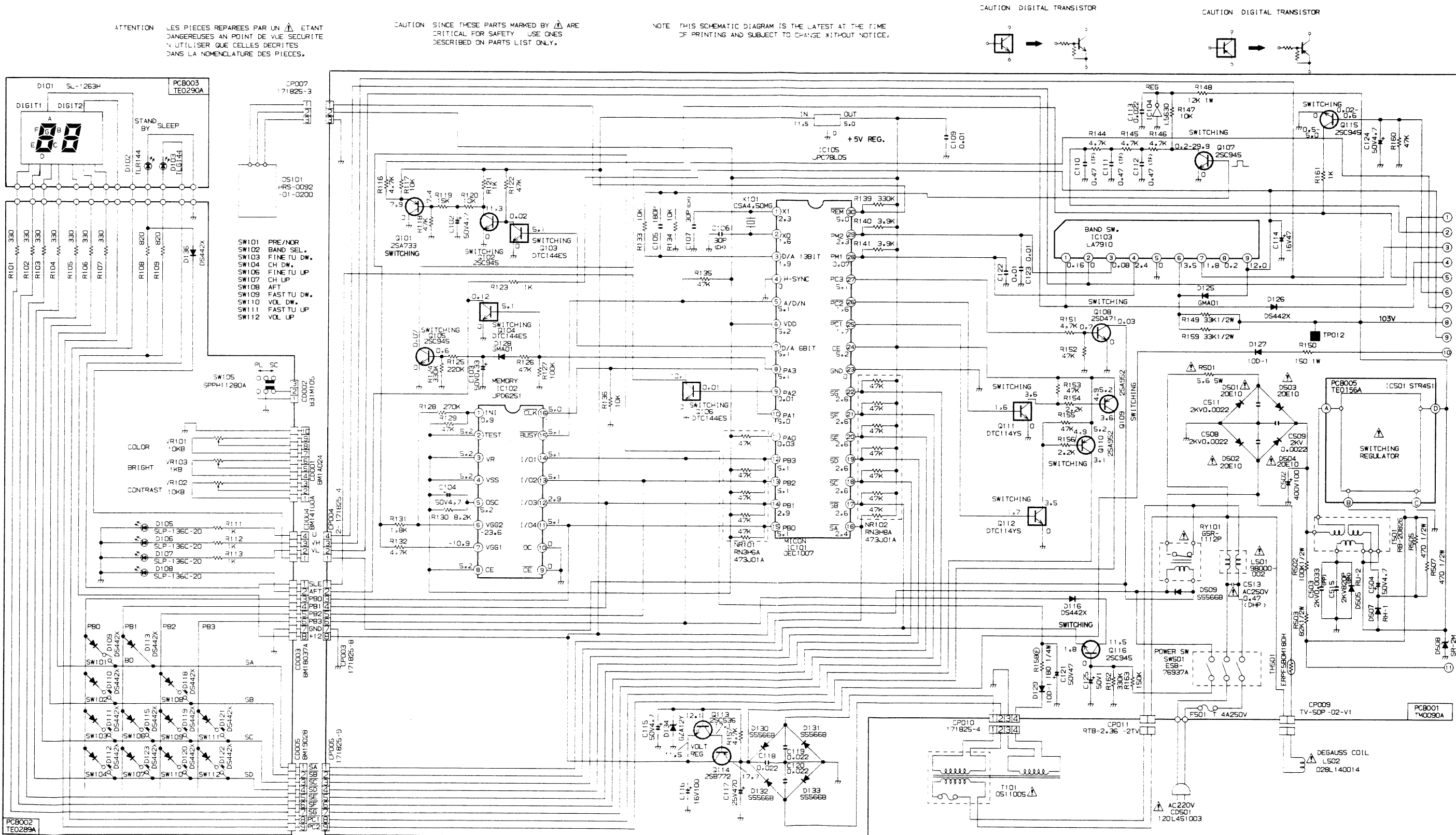


ATTENTION LES PIECES REPARÉES PAR UN  ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

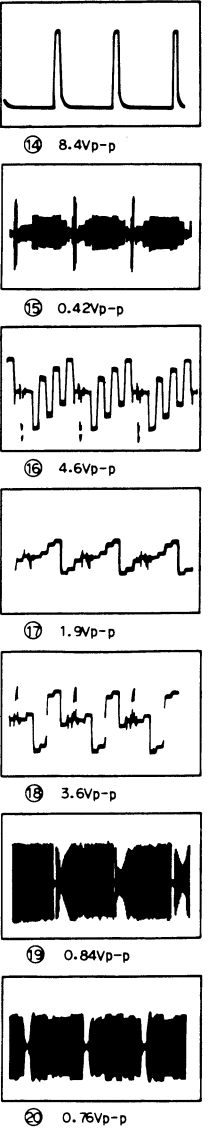
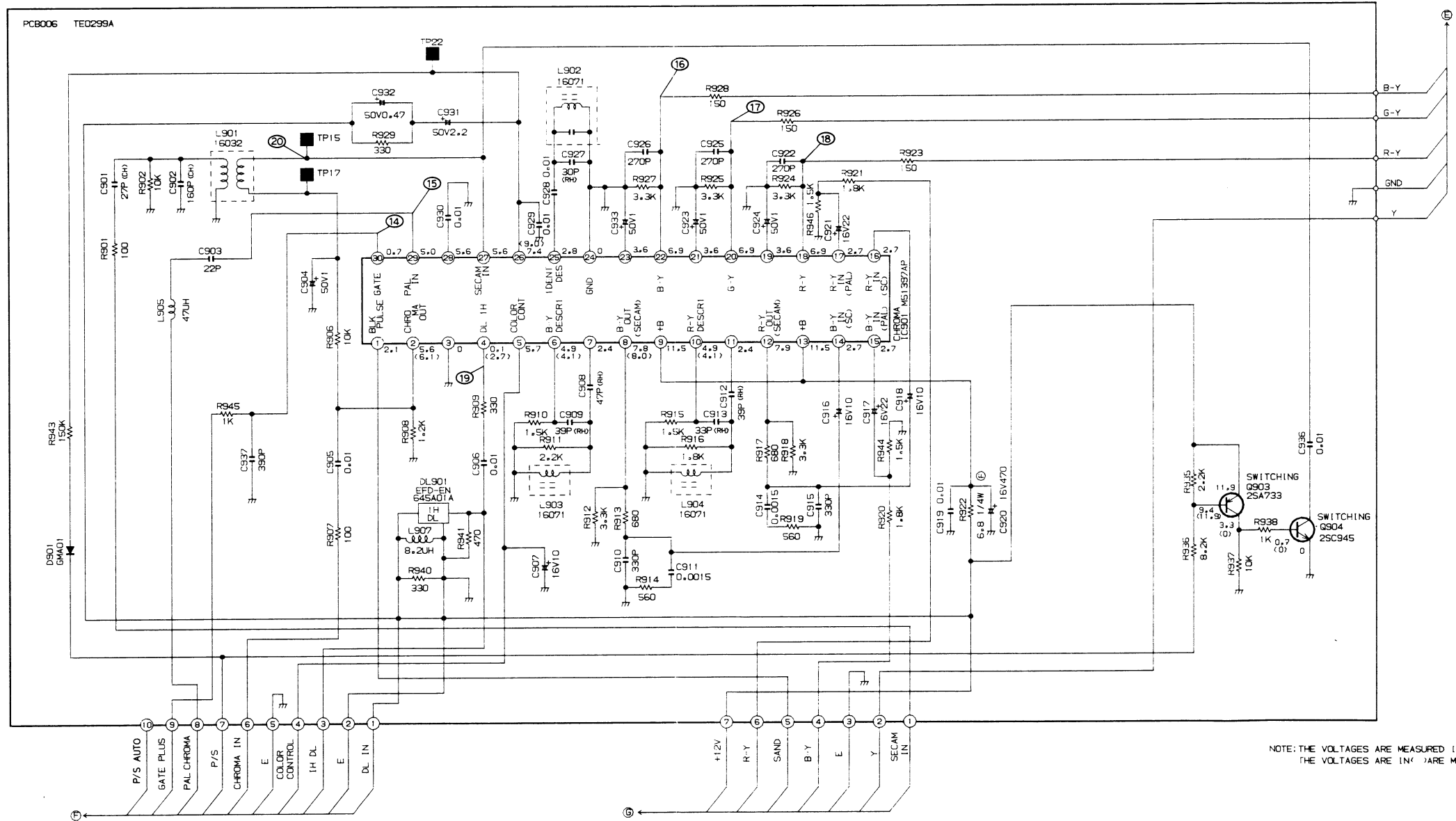
CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CHASSIS SCHEMATIC DIAGRAM



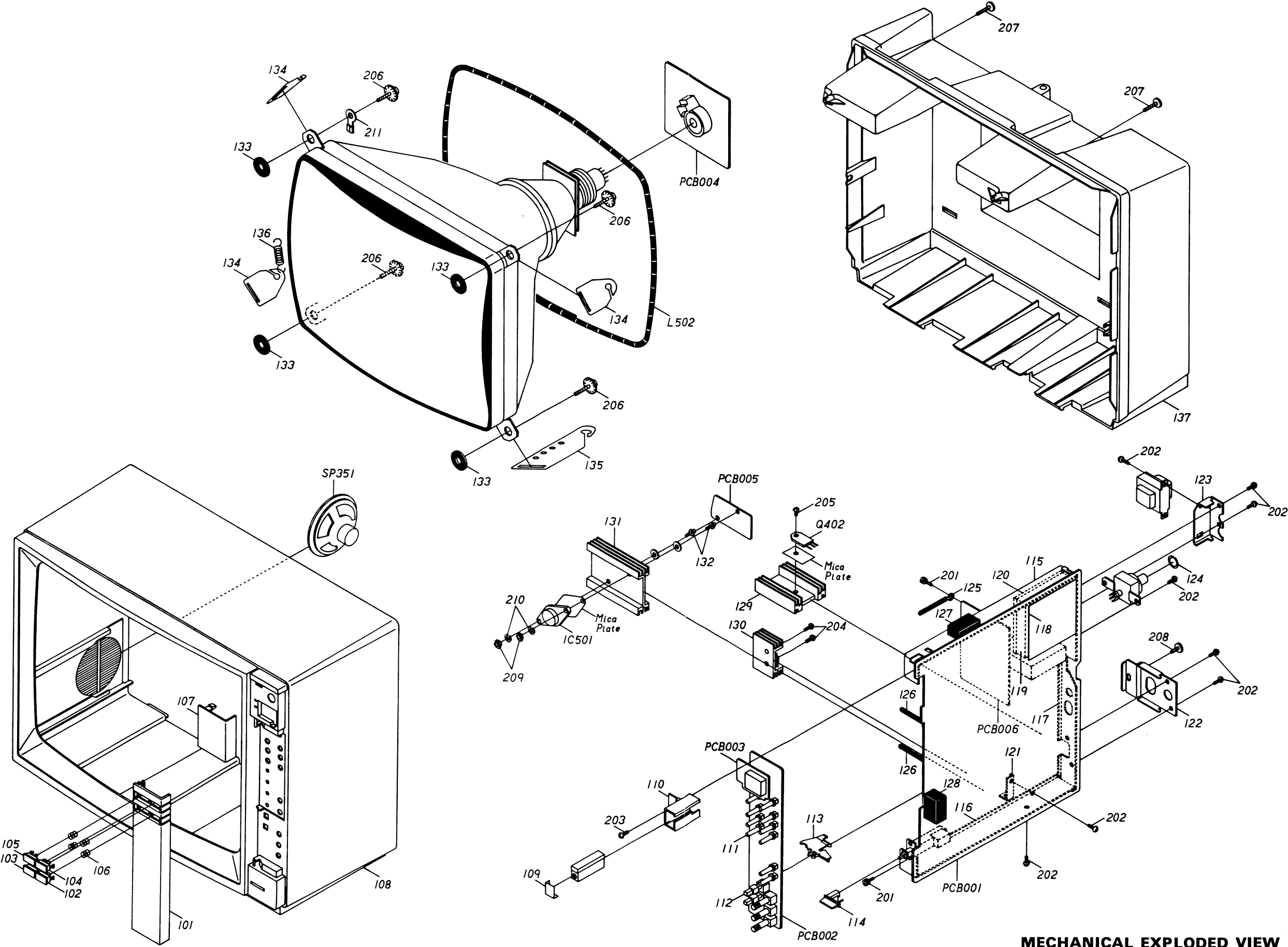
CHASSIS SCHEMATIC DIAGRAM



NOTE: THE VOLTAGES ARE MEASURED IN PAL, AND
THE VOLTAGES ARE IN Y ARE MEASURED IN SECAM.

CHASSIS SCHEMATIC DIAGRAM

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW

MECHANICAL REPLACEMENT PARTS LIST

REF.NO	PARTS.NO	DESCRIPTION	
101	713SPJ0003	DOOR	
102	735SPJ0001	BUTTON,VOLUME UP	
103	735SPJ0002	BUTTON,VOLUME DOWN	
104	735SPJ0003	BUTTON,CHANNEL UP	
105	735SPJ0004	BUTTON,CHANNEL DOWN	
106	742JUA0032	SPRING,BUTTON	
107	7232020154	PLATE,RECEIVER	
108	A35302723	ABINET,FRONT ASS'Y	
	701SPJ0063	CABINET,FRONT	
	713JPA0019	GLASS,LED	
	713JPA0076	GLASS,LED	
	7240000010	SHEET,WARNING	
	7240000294	PLATE,CONTROL(1)	
	7240000295	PLATE,CONTROL(2)	
109	752JNA0006	PLATE,SHIELD REMOCON	
110	756SPA0002	HOLDER,REMOCON	
111	737SPA0001	BUTTON,CAP	
112	735SPA0002	BUTTON,CHANNEL	
113	756SPA0001	HOLDER,PCB	
114	736JPA0012	BUTTON,POWER	
115	761JSA0277	FRAME,PCB(1)	
	7240000006	SHEET,TRANSLESS CAUTION	
116	761JSA0177	FRAME,PCB(2)	
117	761JSA0183	FRAME,PCB(3)	
118	752JSA0162	PLATE,SHIELD	
119	752JSA0163	SHIELD,CASE	
120	752JSA0164	SHIELD,LID	
121	761JSA0218	FRAME,FBT PCB	
122	761JSA0193	FRAME,FBT	
	800JQ00065	SHEET	10*40*T13
123	761JSA0194	FRAME,REMOCON TRANSFORMER	
124	749JUA0002	SPRING,ANTENNA	
125	899PEC0340	CORD CLAMP NO.PEC-1034-0	
126	899000CP1S	COATING CP-1S 50MM	
127	800JF00111	FC SHEET	18*30*T13
128	800JF00128	FC SHEET	15*30*T19
129	763JAA0027	HEAT SINK,OS	
130	763JAA0025	HEAT SINK,OS	
131	763JAA0049	HEAT SINK,POWER	
132	788JEE0001	SCREW,IC	
133	800JR00014	SHEET,CRT SUPPORT(1T)	
134	751JNA0007	PLATE,EARTH WIRE	
135	751JNA0009	PLATE,EARTH WIRE	
136	741JUA0004	SPRING,EARTH	
137	A35301743	CABINET,BACK ASS'Y	
	702SPA0024	CABINET,BACK	
	800JQ00043	SHEET	18*270
	800JQ00058	SHEET	18*240
	800JQ00059	SHEET	18*340
	7222020308	SHEET,RATING	
201	810A130504	SEMS(A)	M3*5 CH
202	8107630604	TAP TITE(S)	3*6 CH
203	8107630804	TAP TITE(S)	3*8 CH
204	8110630804	TAP TITE(P)	3*8 CH
205	8110630A04	TAP TITE(P)	3*10 CH
206	8141150B04	TAP TITE(P)	5*20 CH
207	8116140D52	TAPPING(A) PAN	4*45 BK
208	8117240A01	TAPPING(BO) BIND	4*10 NI
209	8300230004	NUT	M3
210	82B3059074	SPRING,WASHER	3.1*5.9*T0.7
211	901C090000	EARTH LUG(C9)	5.4
---	779JPA0008	SPACER,LED	
---	791SHA0001	POLY BAG	
---	791SHA0004	POLY BAG	
---	791SHA0007	SHEET,LIGHTRON	
---	792SHA0007	PACKAGE BOTTOM	
---	792SHA0008	PACKAGE TOP	
---	793SCD0232	GIFT BOX	
---	899P550000	CRIMPING SLEEVE	
---	8995167000	BAND,CORD CLAMP	

THIS ELECTRICAL PARTS LIST IS STANDARD PARTS LIST, BUT ACTUALLY
INTERCHANGEABLE PARTS MAY BE USED IN THE UNIT.
SEE THE INTERCHANGEABLE PARTS LIST AFTER THE STANDARD PARTS LIST.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PARTS. NO	DESCRIPTION	REF. NO	PARTS. NO	DESCRIPTION
-RESISTORS-			-SEMI CONDUCTORS (CONT)-		
R148	R3B181123J	R.METAL OXIDE 12K OHM 1 W	D103	0021550100	LED TLG144
R150	R3B181151J	R.METAL OXIDE 150 OHM 1 W	D105	0021320090	LED SLP-136C-20
R158	R61584181J	R.FUSE 180 OHM 1/4W	D106	0021320090	LED SLP-136C-20
R204	R0D108270J	RC 27 OHM 1/8W	D107	0021320090	LED SLP-136C-20
R212	R01106273J	RC 27K OHM 1/6W	D108	0021320090	LED SLP-136C-20
R306	R615845R6J	R.FUSE 5.6 OHM 1/4W	D109	D13TDS442X	DIODE,SILICON DS442X-BT
R355	R0D108681J	RC 680 OHM 1/8W	D110	D13TDS442X	DIODE,SILICON DS442X-BT
R358	R61582101J	R.FUSE 100 OHM 1/2W	D111	D13TDS442X	DIODE,SILICON DS442X-BT
R403	R0D108393J	RC 39K OHM 1/8W	D112	D13TDS442X	DIODE,SILICON DS442X-BT
R413	R3B18B472J	R.METAL OXIDE 4.7K OHM 3 W	D113	D13TDS442X	DIODE,SILICON DS442X-BT
R426	R0D108124J	RC 120K OHM 1/8W	D115	D13TDS442X	DIODE,SILICON DS442X-BT
R428	R3B18A332J	R.METAL OXIDE 3.3K OHM 2 W	D116	D13TDS442X	DIODE,SILICON DS442X-BT
R433	R61581151J	R.FUSE 150 OHM 1 W	D118	D13TDS442X	DIODE,SILICON DS442X-BT
R434	R5A2CE100J	R.CEMENT 10 OHM 7 W	D119	D13TDS442X	DIODE,SILICON DS442X-BT
R435	R615823R3J	R.FUSE 3.3 OHM 1/2W	D120	D13TDS442X	DIODE,SILICON DS442X-BT
R436	R615813R9J	R.FUSE 3.9 OHM 1 W	D121	D13TDS442X	DIODE,SILICON DS442X-BT
R437	R615811R5J	R.FUSE 1.5 OHM 1 W	D122	D13TDS442X	DIODE,SILICON DS442X-BT
R438	R615811R5J	R.FUSE 1.5 OHM 1 W	D123	D13TDS442X	DIODE,SILICON DS442X-BT
△ R501	R5A2CD5R6K	R.CEMENT 5.6 OHM 5 W	D125	D13TDS442X	DIODE,SILICON DS442X-BT
R506	R3B18A220J	R.METAL OXIDE 22 OHM 2 W	D126	D13TDS442X	DIODE,SILICON DS442X-BT
R651	R0D108153J	RC 15K OHM 1/8W	D127	D200010D10	DIODE,RECTIFIER 10D-1
R802	R31181153J	R.METAL OXIDE 15K OHM 1 W	D128	D13TDS442X	DIODE,SILICON GMA-01-BT
R803	R31181153J	R.METAL OXIDE 15K OHM 1 W	D129	D200010D10	DIODE,RECTIFIER 10D-1
R804	R31181153J	R.METAL OXIDE 15K OHM 1 W	D130	D25T5566B0	DIODE,RECTIFIER S5566B
△ R820	R23101225K	R.SOLID 2.2M OHM 1 W	D131	D25T5566B0	DIODE,RECTIFIER S5566B
R922	R615846R8J	R.FUSE 6.8 OHM 1/4W	D132	D25T5566B0	DIODE,RECTIFIER S5566B
-CAPACITORS-			D133	D25T5566B0	DIODE,RECTIFIER S5566B
C110	P61300474J	CMPL 0.47 UF 50V	D134	D93T01200Y	DIODE,ZENER GZA12 Y BT
C111	P61300474J	CMPL 0.47 UF 50V	D136	D13TDS442X	DIODE,SILICON DS442X-BT
C112	P61300474J	CMPL 0.47 UF 50V	D351	D13TDS442X	DIODE,SILICON GMA-01-BT
C117	E0A1F3471M	CE 470 UF 25V	D352	D13TDS442X	DIODE,SILICON GMA-01-BT
C124	E0A1054R7M	CE 4.7 UF 50V	D401	D13TDS442X	DIODE,SILICON GMA-01-BT
C354	E025F84R7M	CE 4.7 UF 160V	D402	D13TDS442X	DIODE,SILICON GMA-01-BT
C356	E025F8220M	CE 22 UF 160V	D403	D93T01200Y	DIODE,ZENER GZA12 Y BT
C403	C020B0514K	CC 0.01 UF 500V B	D404	D93T01100Y	DIODE,ZENER GZA11 Y BT
C421	E0A1F4101M	CE 100 UF 35V	D405	D2D0008B40	DIODE,RECTIFIER BB-4
C422	E0A1F3222M	CE 2200 UF 25V	D406	D23TDFD05G	DIODE,RECTIFIER DFD05G
C424	E025F0010M	CE 1 UF 250V	D407	D23TDFD05G	DIODE,RECTIFIER DFD05G
C425	P441F2624J	CMPP 0.62 UF 200V	D408	D23TDFD05G	DIODE,RECTIFIER DFD05G
C427	P4A1F2564J	CMPP 0.56 UF 200V	D409	D23TDFD05G	DIODE,RECTIFIER DFD05G
C428	P4A2FG912J	CMPP 0.0091UF 2KV	△ D501	D28020E100	DIODE,SILICON 20E10
C429	E0A1F4471M	CE 470 UF 35V	△ D502	D28020E100	DIODE,SILICON 20E10
C431	E025D04R7M	CE 4.7 UF 250V	△ D503	D28020E100	DIODE,SILICON 20E10
C432	E0A1F3471M	CE 470 UF 25V	△ D504	D28020E100	DIODE,SILICON 20E10
C433	P341F1562J	CPP 0.0056UF 100V	D505	D2BF00RU20	DIODE,SILICON RU-2
C435	E0A102471M	CE 470 UF 16V	D506	D2B000RH10	DIODE,RECTIFIER RH-1
C436	E0A102471M	CE 470 UF 16V	D507	D2B000RH10	DIODE,RECTIFIER RH-1
C438	E0A105100M	CE 10 UF 50V	D508	D2B000SR2M	DIODE,AVARANSU SR-2M
C449	C0D08N7W2K	CC 820 PF 2KV	D509	D25T5566B0	DIODE,RECTIFIER S5566B
C450	P341F1473J	CPP 0.047 UF 100V	D601	D13TDS442X	DIODE,SILICON GMA-01-BT
C452	E025F8101M	CE 100 UF 160V	D602	D13TDS442X	DIODE,SILICON GMA-01-BT
C460	C0D08N7L2K	CC 330 PF 2KV	D603	D13TDS442X	DIODE,SILICON GMA-01-BT
C461	C0A0SL4P2K	CC 430 PF	D604	D13TDS442X	DIODE,SILICON GMA-01-BT
C502	E0260H101T	CE 100 UF 400V	D605	D13TDS442X	DIODE,SILICON GMA-01-BT
C503	P4A2FG332J	CMPP 0.0033UF 2KV	D606	D13TDS442X	DIODE,SILICON GMA-01-BT
C508	C02FB07H3K	CC 0.0022UF 2KV B	D607	D13TDS442X	DIODE,SILICON GMA-01-BT
C509	C02FB07H3K	CC 0.0022UF 2KV B	D608	D13TDS442X	DIODE,SILICON GMA-01-BT
C511	C02FB07H3K	CC 0.0022UF 2KV B	D609	D13TDS442X	DIODE,SILICON GMA-01-BT
△ C513	P4440B474M	CMPP 0.47 UF 250V	D611	D13TDS442X	DIODE,SILICON DS442X-BT
C515	C0D08N7W2K	CC 820 PF 2KV	D901	D13TDS442X	DIODE,SILICON GMA-01-BT
C611	C020F0414Z	CC 0.01 UF 50V	IC101	I52D010070	INTEGRATED CIRCUIT OEC1007
C620	P12100103J	CP 0.01 UF 50V	IC102	I32D062510	INTEGRATED CIRCUIT UPD6251C
C623	C020SL4E1K	CC 15 PF	IC103	I03S079100	INTERATED CIRCUIT LAT910
C801	C02FB07H3K	CC 0.0022UF 2KV B	IC104	I039956300	INTEGRATED CIRCUIT L5630
△ C805	C030E09H3M	CC 2200 PF 4KV E	IC105	I02A98L050	INTEGRATED CIRCUIT UPC78L05
C918	E0A102100M	CE 10 UF 16V	IC201	I03DE75200	INTEGRATED CIRCUIT LAT520
C920	E0A102471M	CE 470 UF 16V	IC401	I02DE1421A	INTEGRATED CIRCUIT UPC1421CA
-SEMI CONDUCTORS-			IC402	I02SD13780	INTEGRATED CIRCUIT UPC1378H
D101	0040322001	LED DISPLAY SL-1263H	IC403	I01A98M120	INTEGRATED CIRCUIT AN78M12
D102	0021520120	LED TLR144	△ IC501	I2B3904510	INTEGRATED CIRCUIT STR-451
			IC901	I06DC13970	INTEGRATED CIRCUIT M51397AP
Q101	TA2T007330	TRANSISTOR SILICON 2SA733-T	Q102	TC2T009450	TRANSISTOR SILICON 2SC945-T
Q103	TN7TD03001	COMPOUND,TRANSISTOR DTC144E S-T	Q104	TN7TD03001	COMPOUND,TRANSISTOR DTC144E S-T
Q105	TC2T009450	TRANSISTOR SILICON 2SC945-T	Q106	TN7TD03001	COMPOUND,TRANSISTOR DTC144E S-T
Q107	TC2T009450	TRANSISTOR SILICON 2SC945-T	Q108	T020004710	TRANSISTOR SILICON 2SD471
Q109	TA2T009520	TRANSISTOR SILICON 2SA952-T	Q110	TA2T009520	TRANSISTOR SILICON 2SA952-T

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO PARTS.NO

DESCRIPTION

-SEMI CONDUCTORS (CONT)-

Q111 TN7TF03001 COMPOUND,TRANSISTOR DTC114Y S-T
 Q112 TN7TF03001 COMPOUND,TRANSISTOR DTC114Y S-T
 Q113 TC3T005360 TRANSISTOR SILICON 2SC536NP-T
 Q114 TB20007720 TRANSISTOR SILICON 2SB772
 Q115 TC2T009450 TRANSISTOR SILICON 2SC945-T
 Q116 TC2T009450 TRANSISTOR SILICON 2SC945-T
 Q201 TC5T0388A0 TRANSISTOR SILICON 2SC388A
 Q351 TC30022710 TRANSISTOR SILICON 2SC2271
 Q352 TC30022710 TRANSISTOR SILICON 2SC2271
 Q401 TC3F026210 TRANSISTOR SILICON 2SC2621

Q402 TD3F013970 TRANSISTOR SILICON 2SD1397-ORI-YB
 Q403 TC2T009450 TRANSISTOR SILICON 2SC945-T
 Q404 TC2T009450 TRANSISTOR SILICON 2SC945-T
 Q405 TA2T00733Q TRANSISTOR SILICON 2SA733QT
 Q601 TA2T00733Q TRANSISTOR SILICON 2SA733QT
 Q602 TA2T00733Q TRANSISTOR SILICON 2SA733QT
 Q604 TA2T00733Q TRANSISTOR SILICON 2SA733QT
 Q605 TC2T009450 TRANSISTOR SILICON 2SC945-T
 Q606 TP7TC03001 COMPOUND,TRANSISTOR DTA124E S-T
 Q607 TN7OC03001 COMPOUND,TRANSISTOR DTC124E S

Q801 TC30022710 TRANSISTOR SILICON 2SC2271
 Q802 TC30022710 TRANSISTOR SILICON 2SC2271
 Q803 TC30022710 TRANSISTOR SILICON 2SC2271
 Q903 TA2T00733Q TRANSISTOR SILICON 2SA733QT
 Q904 TC2T009450 TRANSISTOR SILICON 2SC945-T

- COILS & TRANSFORMERS-

L202 021673R82M COIL,EL0606RA-R82M 0.82 UH
 L203 0336020027 COIL,VIDEO IFT 16092MM
 L204 0335000057 COIL,VIDEO IFT 16091MM
 L205 021673100K COIL,EL0606RA-100K 10 UH
 L206 0335000018 COIL,VIDEO IFT 16084SU
 L401 021673560K COIL,EL0606RA-560K 56 UH
 L402 0221000008 COIL,LINEARITY 1429MS
 L403 021004180M COIL 18 UH
 L501 0298000002 COIL,LINE FILTER 98000002
 L502 028L140014 COIL,DEGAUSS 8L140014

L602 021673470K COIL,EL0606RA-470K 47 UH
 L603 0216735R6K COIL,EL0606RA-5R6K 5.6 UH
 L604 0335000094 COIL,MATHING 3500009
 L606 021673470K COIL,EL0606RA-470K 47 UH
 L801 021JA2101K COIL,LAL03TA101K 100 UH
 L901 03302R0018 COIL,CHROMA 16032SU
 L902 03352R0064 COIL,CHROMA 16071
 L903 03352R0064 COIL,CHROMA 16071
 L904 03352R0064 COIL,CHROMA 16071
 L905 021JB6470K COIL,LAL02T470K-F 47 UH
 L907 0216738R2K COIL,EL0606RA-8R2K 8.2 UH

T101 040511005K TRANSFORMER,POWER AC 0511005
 T351 045128004K TRANSFORMER,SOUND OUTPUT RB-20883
 T401 03305Y001C TRANS,HORIZONTAL DRIVE 305Y001
 T501 0481280015 TRANSFORMER,SWITCHING RB-20826

-JACK & CONNECTORS-

.01 0602101004 JACK,RCA 3.5 HSJ0912-01-050
 J801 0662120004 SOCKET CATHODE RAY TUBE HPS0171-01-050

-SWITCHES-

SW101 0501201007 SWITCH,PUSH SPPH11280A
 SW102 0504111003 SWITCH,TACT EVQQA09T
 SW103 0504111003 SWITCH,TACT EVQQA09T
 SW104 0504111003 SWITCH,TACT EVQQA09T
 SW105 0501201007 SWITCH,PUSH SPPH11280A
 SW106 0504111003 SWITCH,TACT EVQQA09T
 SW107 0504111003 SWITCH,TACT EVQQA09T
 SW108 0504111003 SWITCH,TACT EVQQA09T
 SW109 0504111003 SWITCH,TACT EVQQA09T
 SW110 0504111003 SWITCH,TACT EVQQA09T

SW111 0504111003 SWITCH,TACT EVQQA09T
 SW112 0504111003 SWITCH,TACT EVQQA09T
 SW501 0530102008 SWIHC,H,PUSH ESB-76937A
 SW601 0510422003 SWITCH,SLIDE SS121-B

-VARIABLE RESISTORS-

VR101 V028014B04 VR,ROTARY RK09K1130A5EA
 VR102 V028014B04 VR,ROTARY RK09K1130A5EA
 VR103 V028013B01 VR,ROTARY RK09K1130A5DA
 VR201 V115314B02 VR,SEMI FIXED EVN-52JA00B14
 VR401 V115352B02 VR,SEMI FIXED EVN-52JA00B52
 VR603 V1263Q2B01 VR,SEMI FIXED RHE0A520FB
 VR604 V126314B01 VR,SEMI FIXED RHE0A140FB
 VR605 V1263Q4B01 VR,SEMI FIXED RHE0A540CA
 VR801 V1G5C53B04 VR,SEMI FIXED TM8KH1-1S-B5KOHM
 VR802 V1G5C52B04 VR,SEMI FIXED TM8KH1-1S-B500OHM
 VR803 V1G5C53B04 VR,SEMI FIXED TM8KH1-1S-B5KOHM
 VR804 V1G5C53B04 VR,SEMI FIXED TM8KH1-1S-B5KOHM
 VR805 V1G5C52B04 VR,SEMI FIXED TM8KH1-1S-B500OHM

REF.NO PARTS.NO

DESCRIPTION

-P.C. BOARDS-

PCB001 13TM0090A3 PCB TM0090A
 PCB002 13TE0289A3 PCB TE0289A
 PCB003 13TE0290A3 PCB TE0290A
 PCB004 13TC0086A3 PCB TC0086A
 PCB005 13TE0156A3 PCB TE0156A
 PCB006 13TE0299A3 PCB TE0299A

-MISCELLANEOUS-

ANT001 0637300001 ATC UNIT ATCU-PS-K
 ANT002 125F110008 ANTENNA,ROD T-2100B
 ANT003 023V000003 COIL,BALUN SU5011
 B401 0246451652 CORD,BEADS BF25-4.5*5*1.6
 B402 0246451652 CORD,BEADS BF25-4.5*5*1.6
 BT101 1412004001 BATTERY,MANGAN UM-4(SP)
 BT102 1412004001 BATTERY,MANGAN UM-4(SP)
 CD001 068M1A024A CORD CONNECTOR 8M1A024
 CD002 068M13105A CORD CONNECTOR 8M13105
 CD003 068M18037A CORD CONNECTOR 8M18037

CD004 068M14100A CORN CONNECOTOR 8M14100A
 CD005 068M19028A CORD CONNECTOR 8M19028
 CD006 068D32033A CORD CONNECTOR 8D32033
 CD501 120L451003 CORD AC BUSH 8FEET
 CD801 068343004A CORD UX CONNECTOR 8343004A
 CD802 122Q054103 CORD,JUMPER 2Q054103
 CF001 11624223S2 FILTER EMI DSS310-55D223S
 CF002 11624223S2 FILTER EMI DSS310-55D223S
 CF003 11624223S2 FILTER EMI DSS310-55D223S
 CF004 11624223S2 FILTER EMI DSS310-55D223S

CF201 1027038R91 FILTER,SAW F1034
 CF202 1012105R51 FILTER,CERAMIC TRAP TPS5.5MB
 CF301 101225R501 FILTER,CERAMIC CDA5.5MC24B
 CF302 1012005R52 FILTRE,CERAMIC SFE5.5MC
 CF351 11624223S2 FILTER EMI DSS310-55D223S
 CP001 06941A0019 CONNECTOR PCB SIDE 1-171825-0
 CP002 0694130015 CONNECTOR PCB SIDE 4-171825-0
 CP003 0694180019 CONNECTOR PCB SIDE 171825-8
 CP004 0694140010 CONNECTOR PCB SIDE 2-171825-4
 CP005 0694190019 CONNECTOR PCB SIDE 171825-9

CP006 0693320018 CONNECTOR PCB SIDE RTB-2.36-2TV
 CP007 0694130019 CONNECTOR PCB SIDE 171825-3
 CP008 0693340018 CONNECTOR PCB SIDE RTB-2.36-4TV
 CP009 0693320029 CONNECTOR PCB SIDE TV-50P-02-V1
 CP010 0694140019 CONNECTOR PCB SIDE 171825-4
 CP011 0693320018 CONNECTOR PCB SIDE RTB-2.36-2TV
 CP012 069RF00040 CONNECTOR PIN 5530-12B
 CP019 069RFA0040 CONNECTOR PIN 5530-10B
 CP020 069RF70040 CONNECTOR PIN 5530-07B
 CP101 0694290040 CONNECTOR PCB SIDE 174161-9

CP102 0694260050 CONNECTOR PCB SIDE 174161-6
 CP103 0694290030 CONNECTOR PCB SIDE 174074-9
 CP104 0694260040 CONNECTOR PCB SIDE 174074-6
 CP801 0694430100 CONNECTOR 2-172629-3
 DL601 1031000601 DELAY ELT-10Z246N
 DL901 104114R431 DELAY LINE GLASS EFD-EN645A01A
 EAR351 074F130002 EARPHONE 4F130002
 F501 0802T04001 FUSE FST 4A(T)250V
 FB401 0437140021 TRANSFORMER,FLYBACK 3714002
 FH501 067H000001 HOLDER,FUSE 7800-6268

FH502 067H000001 HOLDER,FUSE 7800-6268
 MS001 128F000003 MICA,SHEET 1S-3MPC
 NR101 110E547301 R,NETWORK RN3H6A473J01A
 NR102 110E747301 R,NETWORK RN3H8A473J01A
 OS101 0772004013 REMOTE RECEIVER HRS-0092-01-0200
 RY101 0560721102 RERAY POWER G5R-1112P
 S001 128F100002 SPACER BUSH-H
 S002 128F100002 SPACER BUSH-H
 SP351 070G031002 SPEAKER EAS-8P75SX-G
 TH501 D810M180H0 DEGAUSS ELEMENT ERP-5F50M180H

TM101 0762090001 TRANSMITTER HRS-0232-01-1100
 TU001 0145211003 TUNER,UHF-VHF EC-CB-0309
 V801 098E140406 TUBE,CATHODE RAY A34EAD00X AT1620/92
 X101 10024R5002 CERAMIC OSCILLATOR CSA4.50MG
 X401 1002R50002 CERAMIC OSCILLATOR CSB500F2
 X601 10064R4306 CRYSTAL HC43U4.433619

-P.C. BOARD ASS'Y-

PCB001 A35302011P PCB ASS'Y TM0090A-P

RESISTOR

RC CARBON RESISTOR

CAPACITOR

CC CERAMIC CAPACITOR

CE ALMI ELECTROLYTIC CAPACITOR

CP POLYESTER CAPACITOR

CPP ... POLYPROPYLENE CAPACITOR

CMPL ... METAL PLASTIC CAPACITOR

CMPP .. METAL POLYPROPYLENE CAPACITOR

INTERCHANGEABLE PARTS LIST

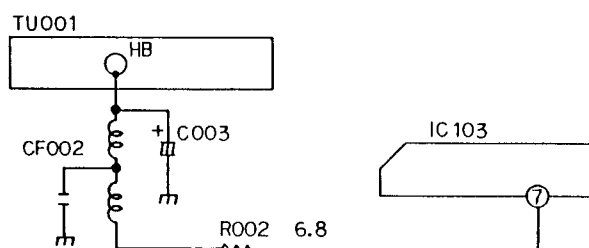
NOTE:THE FOLLOWING PART(S) MAY BE SUBSTITUTED FOR PARTS INDICATED
IN THE BASIC PART(S) LIST (WITH THE SAME REF.NO.). THESE PARTS
SHARE THE SAME ELECTRICAL CHARACTERISTICS AND OTHER ELEMENTS
FOR COMMON USAGE. EITHER PART NUMBER MAY BE USED IN THIS UNIT.

REF.NO	DESCRIPTION	DESCRIPTION
EAR351	4F130002 (074F130002)	SE-100-335 (074K130006)

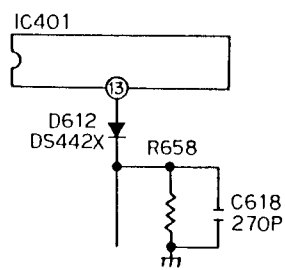
DIFFERENCES

REF. No	Manufacture Version A		Manufacture Version B		Manufacture Version C		Manufacture Version D		Reason
	Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description	
V801	098E140406	CRT A34EAD00X	092B140417	CRT A34JLL70X10	0925140404	CRT A34EAD00X	092D140401	CRT 370LHB22-TC11	Alteration of CRT
R434		R. Cement 10 ohm 7W		R. Cement 10 ohm 7W		R. Cement 10 ohm 7W		R. Cement 15 ohm 7W	
R441		RC 270K ohm 1/4W		RC 270K ohm 1/4W		RC 270K ohm 1/4W		RC 330K ohm 1/4W	
R473		RC 820K ohm 1/4W		RC 560K ohm 1/4W		RC 820K ohm 1/4W		RC 820K ohm 1/4W	
C425		CMPP 0.62 μ F 200V		CMPP 0.47 μ F 200V		CMPP 0.62 μ F 200V		CMPP 0.62 μ F 200V	
C428		CMPP 0.0091 μ F 2KV		CMPP 0.01 μ F 2KV		CMPP 0.0091 μ F 2KV		CMPP 0.0091 μ F 2KV	
C449		CC 820PF 2KV		CC 390PF 2KV		CC 820PF 2KV		CC 820PF 2KV	
L402	0221000008	Coil 1429MS	0221000002	Coil 1431PT	0221000008	Coil 1429MS	0221000008	Coil 1429MS	
PCB001	A35302011P	PCB Ass'y	A35302011D	PCB Ass'y	A35321011P	PCB Ass'y	A35302011H	PCB Ass'y	
R002				R. Fuse 6.8 ohm 1/4W				R. Fuse 6.8 ohm 1/4W	
R201		RC 100 ohm 1/6W		RC 56 ohm 1/6W		RC 100 ohm 1/6W		RC 56 ohm 1/6W	
R402		RC 8.2K ohm 1/6W		RC 12K ohm 1/6W		RC 8.2K ohm 1/6W		RC 12K ohm 1/6W	
R403		RC 39K ohm 1/6W		RC 33K ohm 1/6W		RC 39K ohm 1/6W		RC 33K ohm 1/6W	
R474				RC 1K ohm 1/4W				RC 1K ohm 1/4W	
R649		RC 2.7K ohm 1/4W		RC 4.7K ohm 1/4W		RC 2.7K ohm 1/4W		RC 4.7K ohm 1/4W	Electric improvement
R650		RC 27K ohm 1/4W		RC 39K ohm 1/4W		RC 27K ohm 1/4W		RC 39K ohm 1/4W	
R652		RC 3.3K ohm 1/6W		RC 1.8K ohm 1/6W		RC 3.3K ohm 1/6W		RC 1.8K ohm 1/6W	
R658		RC 6.8K ohm 1/8W		RC 12K ohm 1/8W		RC 6.8K ohm 1/8W		RC 12K ohm 1/8W	
C003		CE 10 μ F 50V		CE 22 μ F 16V		CE 10 μ F 50V		CE 22 μ F 16V	
C401		CP 0.0018 μ F		CP 0.0012 μ F		CP 0.0018 μ F		CP 0.0012 μ F	
C435		CE 470 μ F 16V		CE 1000 μ F 16V		CE 470 μ F 16V		CE 1000 μ F 16V	
C618				CC 270PF SL				CC 270PF SL	
D401		Diode GMA01				Diode GMA01			
D410				Diode DFA05G				Diode DFA05G	
D411				Diode GZA11 Y				Diode GZA11 Y	
D612				Diode DS442X				Diode DS442X	
VR605	V1263Q4B01	VR, SEMI FIXED 47KB	V126315B01	VR, SEMI FIXED 100KB	V1263Q4B01	VR, SEMI FIXED 47KB	V126315B01	VR, SEMI FIXED 100KB	Production improvement
PCB001	A35301011P	PCB TH0090A	A35301011D	PCB TH0090B	A35301011D	PCB TH0090B	A35301011H	PCB TH0090B	

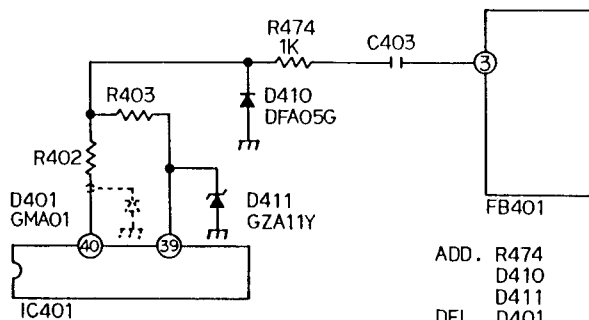
SCHEMATIC DIAGRAM



ADD. R002



ADD. C618
D612



ADD. R474
D410
D411
DEL. D401

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